

Two new species of the genus *Pseudaptinus* Castelnau from northern Australia (Insecta: Coleoptera: Carabidae: Zuphiinae)

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ABSTRACT

Two new species of the zuphiine genus *Pseudaptinus* Castelnau are described from the Northern Territory of Australia: *P. parallelus* sp. nov. and *P. gregoryensis* sp. nov. According to the size of eye and the structure of surface of the elytra, the first species is probably most closely related to *P. punctatostratus* Baehr and *P. cyclophthalmus* Baehr, but it is smaller than either of them; the second species is probably nearest to *P. iridescens* Baehr, but it is distinguished by its smaller eyes and shorter antennae. Additional records are provided for *P. hirsutulus* Baehr and *P. iridescens* Baehr. A new key to all the Australian species of this genus is included.

KEYWORDS: Coleoptera, Carabidae, Zuphiinae, new species, *Pseudaptinus parallelus*, *P. gregoryensis*, taxonomy, Australia, Northern Territory.

INTRODUCTION

During a recent collecting trip by the author through the northern parts of the Northern Territory and Western Australia, two new species of the zuphiine genus *Pseudaptinus* Castelnau were collected. These are described here as *P. parallelus* sp. nov. and *P. gregoryensis*, sp. nov., and this is the fifth supplement to my revision of the Australian Zuphiinae (Baehr 1984, 1985a, 1985b, 1986a, 1985b, 1988, 1991, 1992, 1995, 2001, 2008). Additional specimens of one of the new species, *P. parallelus*, were also received from the Australian National Insect Collection, Canberra, and the South Australian Museum, Adelaide. Additional records of two other species of this genus occurring in northern Australia, *P. hirsutulus* Baehr and *P. iridescens* Baehr, are also provided. The key to the 11 Australian species of this genus is revised to include all species described since the revision of the genus by Baehr (1985).

With about 40,000 described species and subspecies worldwide, carabid beetles are one of the largest families of beetles. They belong to the suborder Adephaga which also includes a few families of aquatic beetles and is mainly characterised by a rather plesiomorphic structure of their leg insertions and by their primitive eamphodeiform larvae which still possess well articulated legs. From Australia presently about 2,600 species and subspecies are recorded, but the number of actual existing species certainly is much greater.

Zuphiinae (or Zuphiini, according to the opinion of authors) is a highly evolved subfamily (or tribe) of carabid beetles, characterised by the completely pilose antennae and in particular by the elongate 1st antennomere, the scapus.

Opinions about the status (subfamily or tribe) of the main subgroups of the family Carabidae differ markedly between authors, but the delimitation of the subgroups is not in doubt, hence the question whether zuphiines should be regarded a subfamily or rather a tribe, is of minor importance.

Zuphiinae presently contain eight genera in Australia, of which the genus *Acrogenys* Macleay and two genera of eavernicolous species (*Speothalpius* Moore and *Speozuphium* Moore) are endemic to Australia. With respect to their phylogenetic status, the Australian zuphiine fauna is particularly diverse and includes as well the probably most plesiotypic zuphiine genus in the world (*Acrogenys*), as well as the highly evolved genera *Speothalpius* and *Speozuphium*.

At present, 45 zuphiine species and subspecies are recorded from Australia (Baehr 1984, 1985a, 1985b, 1986a, 1986b, 1988, 1991, 1992, 1995, 2001, 2008; Moore 1995), but specimens of most species still are rare to very rarely encountered. This is probably due to the presumably rather secretive way of life of most species which, at least during daytime, may be hidden under debris or in cracks in the earth. As a consequence, most recorded specimens were collected using a light at night.

The genus *Pseudaptinus* was founded by Castelnau (1835) on an American species. Later Castelnau (1867) described a single Australian species which was included in the subgenus *Thalpius* Leconte, 1851. Baehr (1985) revised the genus, transferred *Acrogenys australis* Blackburn, 1890 to *Pseudaptinus*, and described six new species. Later Baehr (1995) described another additional species. Hence, at present nine species are recorded from Australia, all are included in the subgenus *Thalpius*, and most of them occur in the tropical northern parts of

Australia. The genus *Pseudaptinus* is characterised by the quite compact build of all species with fairly convex dorsal surface, their posteriorly rounded, not square head, the only moderately elongated 1st antennomere, and the erect and hirsute pilosity. The subgenus *Thalpius* is rather weakly characterised, distinguished from the nominate subgenus mainly by the more depressed dorsal surface and the wider, more cordiform pronotum.

The genus *Pseudaptinus* also occurs in South America and in the southern parts of North America, where specimens of both subgenera are found. Hence this is one of the few earabid genera with an Australian-Neotropical range, which is very interesting in the light of their biogeographical history.

METHODS

For the taxonomic treatment standard methods were used. The male genitalia were removed from specimens soaked overnight in a jar under a wet atmosphere, then cleaned for a short while in hot potassium hydroxide.

For examination of the fine, though taxonomically important, surface microsculpture (i.e., punctation and microreticulation) a high resolution stereomicroscope with up to 64x magnification was used, supported by a lamp of high intensity giving natural light that could be focused. For exact definition of the microsculpture such light is preferable, because fibre-optics lights substantially change perception of the surface structures.

The habitus photographs were taken with a digital camera using SPOT Advanced for Windows 3.5 and subsequently edited with Corel Photo Paint 11.

Measurements were made using a stereomicroscope with an ocular micrometer. Length has been measured from the apex of labrum to the apex of the elytra. Length of eye includes a small ring of dark coloured rhabdomes that in some instances is present behind the light area. Length of orbit was taken in a straight line parallel to midline of body, from the posterior margin of the eye to the 'neck' incision. Length of pronotum was measured from the most advanced part of base to the most advanced part of apex. Length of elytra was taken from the most advanced part of humerus to the most advanced apex of elytra. The length/width ratio of the 6th antennomere was chosen for better comparison with the measurements in the revision. It should be noted, however, that the 7th to 9th antennomeres usually are slightly shorter than the 6th antennomere.

ABBREVIATIONS

ANIC	Australian National Insect Collection, Canberra
CBM	Working Collection M. Baehr in Zoologische Staatssammlung, München
NTM	Museum and Art Gallery of the Northern Territory, Darwin (formerly Northern Territory Museum)
SAMA	South Australian Museum, Adelaide

TAXONOMY

Pseudaptinus parallelus sp. nov.

(Figs 1–3, 5, 7)

Material examined. HOLOTYPE – male, Australia07, NT22, Roper River Crossing, 3 km E. Roper Bar, 14°42.83'S, 134°30.51'E, 10 m, 6–7 November 2007, M. Baehr (NTM I005298). PARATYPES – 2 females, same data as holotype (CBM); 1 female, Australia07, NT9, Mary River National Park, Mary River Billabong, 5 km NNW, Mary River Crossing, 12°53.49'S, 131°38.33'E, 28 m, 1–2 November 2007, coll. M. Baehr (CBM); 1 male, 1 female, 12°40'S 142°40'E, Queensland, Batavia Downs Homestead, 22 November 1992, light trap, coll. A. Calder and P. Zborowski (ANIC, CBM); 1 male, Old Greenville, 70 km SW. at light, 14–23 February 96, coll. A. J. Watts (SAMA).

Diagnosis. Species of subgenus *Thalpius* Leconte, characterised by small size, elongate and remarkably parallel-sided elytra, and short antenna.

Description. *Measurements.* Length: 4.75–4.95 mm; width: 1.5–1.6 mm. Ratios: Length of orbit/length of eye: 0.45–0.5; width/length of pronotum: 0.94–0.98; widest / narrowest diameter of pronotum: 1.31–1.35; length/width of elytra: 1.77–1.79; length/width of 6th antennomere: 1.75–1.8.

Colour. Reddish-black to blackish, according to age of the specimen. In dark specimens, suture of elytra indistinctly paler. Mouthparts, antennae, and legs dirty yellow.

Head (Fig. 3). Slightly narrower than pronotum. Eyes large and laterally well protruded, about twice as long as orbits (when measured in a straight line). Orbits markedly

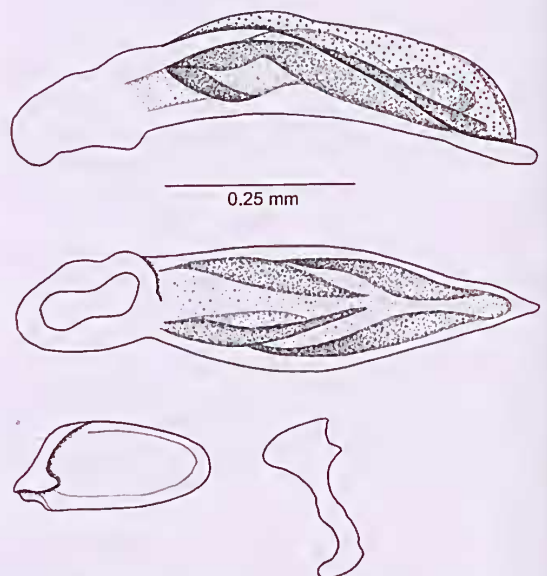


Fig. 1. *Pseudaptinus parallelus* sp. nov. Male genitalia: aedeagus, lateral and ventral view, left and right parameres. Scale: 0.25 mm.

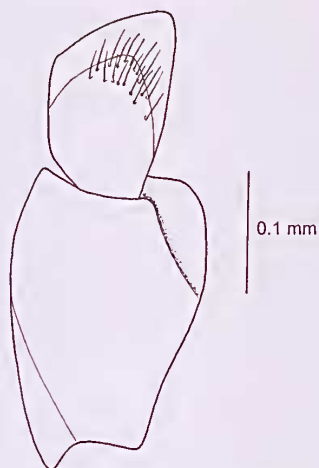
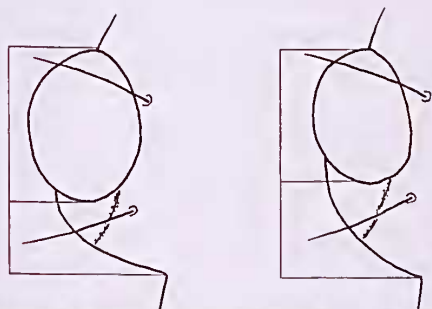


Fig. 2. *Pseudaptinus parallelus* sp. nov. Female gonocoxites 1 and 2. Scale: 0.1 mm.

convex, even obtusely angulate, with sharp angle to neck. Suture between occiput and summit deep, neck dorsally and laterally deeply separated. Orbits separated from summit by sulcus. Posterior supraorbital seta located at level with posterior margin of eye. Labrum anteriorly straight. Mandibles short, incurved at apex. Mental tooth triangular, short and wide. Glossa corneous, apically square, paraglossae membranous, short, fused to glossa, laterally little surpassing the glossa. Galea distinctly pilose. Both palpi densely pilose, labial palpus small, terminal palpomere cylindrical. Maxillary palpus large, though rather short (in group). Antenna short and stout, just surpassing base of clytra, median antennomeres distinctly less than twice as long as wide, 1st antennomere barely longer than 2nd and 3rd antennomeres together. Surface glossy, not microreticulate, coarsely punctate, diameter of punctures slightly larger than distance between punctures, pilosity fairly dense, hirsute, slightly inclined anteriorly.

Prothorax. Slightly longer than wide, depressed, widest in apical fifth. Apical angles broadly rounded, apex faintly concave, lateral margins moderately convex on anterior half, rather deeply sinuate in front of the acute,



Figs 3, 4. Left side of head, showing ratio eye/orbit; 3. *Pseudaptinus parallelus* sp. nov.; 4. *P. gregoryensis* sp. nov.

about rectangular, markedly projecting basal angles. Base distinctly projecting medially, laterally deeply excised, hence basal angles removed from base. Median line deep, anterior transverse sulcus indistinct. Central part of pronotum slightly raised, pronotum near apex with an elongate, rather deep impression on either side. Base and apex both unmargined, lateral borders margined, marginal channel very narrow. Anterior marginal seta situated at apical fifth, posterior seta at basal angle. Anterior seta considerably longer than the posterior seta. Surface without microreticulation, glossy, densely and rather coarsely punctate, diameter of punctures wider than distance between them. Pilosity rather elongate, hirsute, irregularly inclined posteriorly.

Elytra (Figs 5, 7). Narrow and elongate, remarkably parallel-sided, not perceptibly widened in apical part, surface depressed. Humeri projected, rounded. Apex laterally rounded, in middle transversal, barely incurved towards suture. All striae well impressed, coarsely punctate. Intervals depressed, without microreticulation, glossy, with coarse, irregularly uni- to biseriate punctation. Pilosity hirsute but rather depressed, inclined posteriorly, hairs about as long as one interval wide. Third interval with three punctures and erect setae which are well recognisable when seen laterally.

Ventral surface. Thorax with coarse and moderately dense punctures and pilosity. Abdominal sterna with finer and denser punctures and with dense adpressed pilosity. Metepisternum elongate, greater than twice as long as wide at anterior margin. Apical margin of sternum VII in male bisetose, in female quadrisetose, in both sexes with an additional seta on either side removed from apex.

Legs. Of normal shape and length, densely punctate and pilose. Three basal tarsomeres of male protarsus slightly widened and asymmetrically biseriately squamose.

Male genitalia (Fig. 1). Aedeagus small, fairly elongate, apex rather elongate (in group), with remarkably acute tip. Lower surface very gently concave. Orificium very elongate, with a median cleft at apex. Internal sac with two large, rather symmetrical, slightly sclerotised and somewhat folded plates on either side. Parameres very dissimilar, both rounded at apex, right paramere remarkably short.

Female genitalia (Fig. 2). Gonocoxite 2 wide, trapezoidal, with wide, oblique apex, apical part less sclerotised than basal-central part and densely setose latero-apically. No ensiform setae present. Apex of gonocoxite 1 asetose, though apical margin of lateral plate with a few elongate setae.

Variation. Apart from differences in colour which are probably due to the age of the specimens, little variation was noted, even between specimens from Northern Territory and those from northern Queensland.

Collecting circumstances. The specimens from the Northern Territory were sampled with a black light near the sandy bed of the Roper River and at the margin of a billabong with dense marginal vegetation of trees and undergrowth.



Figs 5, 6. Habitus. Body lengths in brackets; 5. *Pseudaptinus parallelus* sp. nov. (4.85 mm); 6. *P. gregoryensis* sp. nov. (5.35 mm).

Distribution. North-eastern part of Northern Territory and tropical northern Queensland, from Cape York Peninsula southwards to about Townsville.

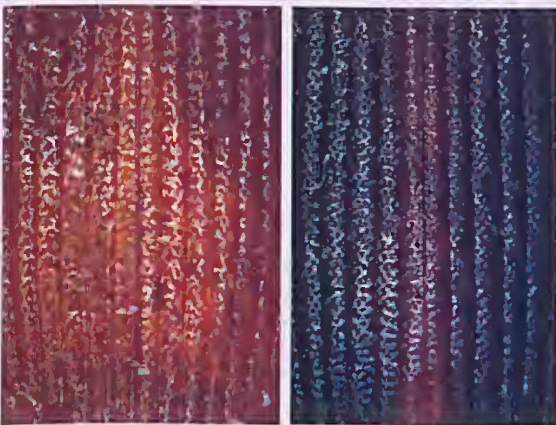
Etymology. The name refers to the remarkably parallel-sided elytra. It is an adjective.

Relationships. Although similar to *P. hirsutulus* Baehr in body shape, the new species is certainly closer to *P. punctatostriatus* Baehr and *P. cyclophthalmus* Baehr, according to the shape of the pilosity and the structure of the aedeagus. However, it differs from both these species by its smaller size, shorter antenna, and the conspicuously parallel-sided elytra.

Pseudaptinus gregoryensis sp. nov.

(Figs 4, 6, 8)

Material examined. HOLOTYPE – female, Australia07, NT37, Gregory National Park, Old Victoria River Crossing,



Figs 7, 8. Centre of elytra showing elytral microsculpture. 7. *Pseudaptinus parallelus* sp. nov.; 8. *P. gregoryensis* sp. nov.

5 km W. Victoria River Roadhouse, Victoria Highway, 15°34.87'S, 131°06.24'E, 35 m, 11–12 November 2007, coll. M. Baehr (NTM I005299).

Diagnosis. Characterised by moderately large eyes (in group), rather dense punctures on the elytral intervals and fine punctures on the striae. Distinguished from most similar *P. iridescens* Baehr by smaller size, slightly smaller eyes, distinctly shorter antenna, and moreover by far less distinct iridescent lustre of the elytra.

Description. *Measurements.* Length: 5.35 mm; width: 1.75 mm. Ratios: Length of orbit/length of eye: 0.75; width/length of pronotum: 0.91; widest/narrowest diameter of pronotum: 1.31; length/width of elytra: 1.69; length/width of 6th antennomere: 2.05.

Colour. Dark blackish brown to almost black, only pronotum very slightly paler, and suture of elytra narrowly dark reddish. Mouth parts, antennae, and legs dirty yellow.

Head (Fig. 4). Slightly narrower than pronotum. Eyes of moderate size, little protruded laterally, about 1.5 x as long as orbits (when measured in a straight line). Orbits evenly convex, forming sharp angle with neck. Suture between neck and summit of head deep, neck dorsally and laterally deeply separated. Orbits separated from summit by sulcus. Posterior supraorbital seta located slightly behind posterior margin of eye. Labrum anteriorly straight. Mandibles short, incurved at apex. Mental tooth triangular, short and wide. Glossa corneous, apically square, paraglossae membranous, short, fused to glossa, laterally little surpassing the glossa. Galea distinctly pilose. Both palpi densely pilose, labial palpus small, terminal palpomere cylindrical. Maxillary palpus large, though rather short (in group). Antenna rather short and stout, surpassing base of elytra by about 2.5 antennomeres, median antennomeres distinctly only twice as long as wide, 1st antennomere slightly longer than 2nd and 3rd antennomeres together. Surface glossy, with extremely superficial microreticulation which is not visible when seen from above, rather densely punctate, diameter of punctures about as large as distance between punctures, but laterally punctation less dense, pilosity fairly dense, hirsute, slightly inclined anteriorly.

Prothorax. Considerably longer than wide, depressed, widest in apical fifth. Apical angles broadly rounded, apex faintly concave, lateral margins in anterior half moderately convex, with elongate sinuation in front of the acute, about rectangular, markedly projecting basal angles. Base in middle distinctly projecting, laterally deeply excised, hence basal angles removed from base. Median line deep, anterior transverse sulcus indistinct. Central part of pronotum slightly raised, near apex with an elongate, rather deep impression on either side. Base and apex both not margined, marginal channel very narrow. Anterior marginal seta situated at apical fifth of length, posterior seta at basal angle. Anterior seta considerably longer than posterior seta. Surface with extremely superficial microreticulation, visible only in oblique light, glossy, densely and moderately

coarsely punctate, diameter of punctures about as wide or even slightly wider than distance between them. Pilosity rather elongate, hirsute, irregularly inclined posteriorly.

Elytra (Figs 6, 8). Rather narrow and elongate, fairly parallel-sided, slightly widened in apical part, surface in middle depressed. Humeri projected, rounded. Apex laterally rounded, in middle slightly oblique, barely incurved towards suture. All striae well impressed, moderately coarsely punctate. Intervals depressed, with superficial traces of slightly transverse microreticulation, rather glossy, with fairly coarse, irregularly triseriate punctation. Pilosity hirsute but rather depressed, inclined posteriad, hairs about as long as one interval wide. Third interval with three punctures and erect setae which are well recognisable when seen laterally.

Lower surface. Thorax with coarse and moderately dense punctures and pilosity. Abdominal sterna with finer and denser punctures and with dense adpressed pilosity. Metepisternum elongate, about twice as long as wide at anterior margin. Apical margin of sternum VII in female quadrisetose and with an additional seta on either side removed from apex.

Legs. Of normal shape and length, densely punctate and pilose. Squamosity of male protarsus unknown.

Male genitalia. Unknown.

Female genitalia. Similar to those of *P. parallelus* sp. nov.

Variation. Unknown.

Collecting circumstances. Collected at a black light near the bed of the Victoria River. Here the substrate consists of pebbles and more or less coarse sand.

Distribution. North-western Northern Territory. Known only from type locality.

Etymology. The name refers to the collecting area, Gregory National Park. It is an adjective.

Relationships. The species is probably most closely related to *P. iridescens* Baehr which is widely distributed in tropical northern Australia, but it is distinguished from *P. iridescens* mainly by the shorter antenna, smaller eyes, coarser punctures of the clytral striae, and barely iridescent elytra.

Pseudaptinus hirsutulus Baehr

Pseudaptinus hirsutulus Baehr, 1985a: 51. – Baehr 1986b: 162; Baehr 2001: 85.

Distribution. Northern parts of the Northern Territory from Darwin eastwards at least to the western boundary of Arnhem Land.

New records. Australia07, NT9, Mary River National Park, Mary River Billabong 5 km NW. Mary River Crossing, 12°53.49'S, 131°38.33'E, 28 m, 1-2 November 2007, coll. M. Baehr (CBM, NTM).

Collecting circumstances. All specimens collected at a black light at the margin of a billabong with dense vegetation of trees and undergrowth. At the Mary River

Billabong this species was collected together with *P. parallelus* sp. nov. (see above).

Pseudaptinus iridescens Baehr

Pseudaptinus iridescens Baehr, 1985a: 43. – Baehr 1986b: 162; Baehr 2001: 84.

Distribution. North-western Victoria, New South Wales and Queensland west of the Great Dividing Range, northern parts of Northern Territory and of Western Australia.

New records. NT22, Roper River Crossing, 3 km E. Roper Bar, 14°42.83'S, 134°30.51'E, 10 m, 6-7 November 2007, coll. M. Baehr; NT29, 70 km N. Top Springs on Buntine Highway, 16°00.94'S, 131°56.33'E, 253 m, 9-10 November 2007, coll. M. Baehr (CBM, NTM).

Collecting circumstances. All the specimens were collected at a black light, those near Roper Bar close to the bank of the Roper River; the one specimen from the 'Buntine Highway' was taken in open woodland, apparently far away from any body of water. At the Roper River this species was collected together with *P. parallelus* sp. nov. (see above).

KEY TO GENUS *PSEUDAPTINUS*

Because the three additional species must now be included in the key for the genus that was previously published (Baehr 1985), a completely new key to all the species of *Pseudaptinus* is provided. For the benefit of the users, figures from previous papers are included as BA85 and BA95.

- 1a. Eyes not longer than orbits (BA85 figs 3a-c, g)2
- 1b. Eyes considerably longer than orbits (BA85 figs 3d-f, h)6
- 2a. Antenna very elongate, median antennomeres >3x longer than wide (BA85 figs 4c, f)3
- 2b. Antenna shorter, median antennomeres <2.5 x longer than wide (BA85 figs 4a, b)4
- 3a. Eyes perceptibly shorter than orbits (BA85 fig. 3g); pronotum elongate, narrow, basal angles very acute (BA85 fig. 12); pronotum and elytra rather convex; striae very coarsely punctate, punctures of intervals in two rows (BA85 fig. 5g); pilosity unequal, rather erect; aedeagus short and thick, apex abruptly sloping, left paramere very large, broadly rounded at apex, right paramere short (BA85 fig. 19).... *P. monteithi* Baehr
- 3b. Eyes as long as orbits (BA85 fig. 3c); pronotum wider, basal angles far less acute (BA85 fig. 8); pronotum and elytra fairly depressed; striae rather finely punctate, punctures of intervals in 3-4 rows (BA85 fig. 5c); pilosity equal, rather depressed; aedeagus long, narrow, and rather low, apex gently sloping, left paramere narrow, square at apex, right paramere rather long and narrow (BA85 fig. 15) *P. brittoni* Baehr

- 4a. Larger species (body length >5.5 mm); antenna longer, median antennomeres well >2 x longer than wide (BA85 fig. 4a); longer and narrower species, fore body considerably shorter than elytra (BA85 fig. 6); aedeagus small and depressed, thickened before apex, then gently sloping, both parameres very long and narrow (BA85 fig. 14)..... *P. fulvus* (Castelnaud)
- 4b. Smaller species (body length <5 mm); antenna shorter, median antennomeres <2 x as long as wide (BA85 fig. 4b; BA95 fig. 1); shorter and wider species, fore body almost as long as elytra (BA85 fig. 7; BA95 fig. 1); aedeagus far less depressed, almost equally wide, or unknown, parameres shorter and wider (BA95 fig. 2)..... 5
- 5a. Eyes smaller, orbits 1/3 x longer than eyes (BA85 fig. 3b); lateral margins of pronotum near base less sinuate, basal angles less projecting (BA85 fig. 7); elytra not markedly depressed on disk, 5th interval not raised; aedeagus unknown. South Australia.....
.....*P. australis* (Blackburn)
- 5b. Eyes larger, orbits little longer than eyes (BA95 fig. 1); lateral margins of pronotum near base deeply sinuate, basal angles well projecting (BA95 fig. 1); elytra markedly depressed on disk, 5th interval distinctly raised; aedeagus short and rather compact (BA95 fig. 2). North Queensland.....*P. depressipennis* Baehr
- 6a. Eyes at most slightly longer than orbits (BA85 fig. 3c); pronotum and elytra rather depressed; antenna very elongate, median antennomeres >3 x longer than wide (BA85 fig. 4e); aedeagus elongate, depressed, apex gently sloping, apex of left paramere square (BA85 fig. 15).....*P. brittoni* Baehr
- 6b. Eyes much longer than orbits (Figs 3, 4; BA85 figs 3d-f, h); body more convex; antenna shorter, median antennomeres <3 x longer than wide (BA85 figs 4d-f, h); aedeagus shorter and stouter, apex more abruptly sloping or apical lamellae with pilose appendices (Fig. 1; BA85 figs 16-18, 20)..... 7
- 7a. Smaller species (body length < 5.1 mm); antenna short, median antennomeres distinctly <2 x longer than wide (BA85 fig. 4h) 8
- 7b. Larger species (body length >5.35 mm); antenna longer, median antennomeres >2 x longer than wide (BA85 figs 4d-f)..... 9
- 8a. Colour brownish to black, surface glossy; head short, neck very distinctive; elytra shorter, <1.67 x longer than wide and perceptibly widened towards apex; striae very coarsely punctate, punctures of intervals fine (BA85 fig. 5h); pilosity elongate, erect, but quite sparse; hairs c. 2 x as long as width of an interval; apex of aedeagus with pilose lateral appendices (BA85 fig. 20) *P. lirsuulus* Baehr
- 8b. Colour reddish to light brown, surface less glossy; head longer, neck less distinctive; elytra longer, >1.77 x longer than wide and markedly parallel-sided (Fig. 5); punctures of striae and intervals less dissimilar; pilosity shorter and denser; apex of aedeagus without such appendices (Fig. 1) *P. parallelus* sp. nov.
- 9a. Antenna rather elongate, median antennomeres > 2.5 x longer than wide (BA85 fig. 4d); striae finely punctate, punctures of intervals dense, in 3-4 rows, punctures not much smaller than those of striae (BA85 fig. 5d); usually elytra distinctly iridescent; aedeagus very thick and broad, both parameres large, apex of right paramere very short and wide (BA85 fig. 16)..
.....*P. iridescens* Baehr
- 9b. Antenna shorter, median antennomeres c. 2 x longer than wide, or little longer (BA85 figs 4e, f); striae coarsely punctate, punctures of intervals considerably finer than those of striae (BA85 figs 5e, f); elytra not, or but faintly iridescent; aedeagus not so large, right paramere longer and more acute (BA85 figs 17, 18), or unknown 10
- 10a. Eyes very large, semicircular and remarkably protruded (BA85 fig. 4f); punctures of intervals in 2-3 rows (BA85 fig. 5f); pilosity rather elongate, unevenly erect and depressed; aedeagus fairly small and narrow, lower surface concave, internal sac small, right paramere very narrow and elongate (BA85 fig. 18)*P. cyclophthalmus* Baehr
- 10b. Eyes less semicircular and protruded (Fig. 3; BA85 fig. 4e); pilosity shorter, more regular and depressed; either punctures of striae less coarse and punctures of intervals at least in 3 rows, or punctures of striae very coarse, almost as wide as the intervals, and punctures of intervals in 2 rows; aedeagus short and thick, widened apically, internal sac very large, right paramere much shorter (BA85 fig. 17), or unknown 11
- 11a. Punctures of striae very coarse, punctures almost as wide as one interval; punctures of intervals sparse, in 2 rows (BA85 fig. 5e); pilosity rather sparse; aedeagus short and thick, widened apically, internal sac very large, right paramere much shorter (BA85 fig. 17)..
.....*P. punctatostriatus* Baehr
- 11b. Punctures of striae less coarse, punctures at most half as wide as one interval; punctures of intervals denser, in 3 or even 4 rows; pilosity denser; aedeagus unknown.....*P. gregoryensis* sp. nov.

REMARKS

The Australian species of the genus *Pseudaptinus* are remarkably similar in many aspects of body shape and structure, except for the unique *P. hirsutulus*, in which the external morphology as well as that of the aedeagus differs considerably from all the other Australian species. The question, why so many morphologically similar species are able to coexist in tropical northern Australia, commonly at the same locality, is not solvable given the lack of information about the ecological preferences and habits of any species of this genus. Almost all specimens with label data on collecting circumstances, and almost all specimens that I have collected during several trips in northern Australia, were sampled at light. Although it may be supposed that all *Pseudaptinus* species are more or less hygrophilous and during the daytime they probably hide under leaf litter, or debris, or in cracks in the soil, nothing has been ever recorded about their nutrition, courtship, or reproduction, and the larvae are also unknown.

It would be interesting to know whether species of *Pseudaptinus* can be sampled either by systematic pitfall trapping or by Berlese Funnel extraction of leaf litter and debris. Both these collecting methods would probably yield more exact information about the habitat preferences of the species.

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